Ecology

Washington State Department of Ecology's summary of pesticide-related Spill Program complaints, Toxic Cleanup Program and Aquatic Pesticide Permits during 2004.

Background

Multiple programs within the Department of Ecology are involved in pesticide-related activities. Ecology works with National Marine Fisheries Service and other federal and state agencies to reduce the impacts of pesticide applications to salmonids under the Federal Endangered Species Act. The agency participates in an interagency Urban Pesticide committee, the Washington State Healthy Schools Initiative and other projects. Ecology is responsible for oversight of contaminated areas requiring cleanup or monitoring, including areas contaminated with pesticides. Ecology's pollution prevention and sustainability efforts emphasize prevention of the overuse and misuse of pesticides.

This report presents data for three programs: Spill Prevention, Preparedness, and Response Program; Toxics Cleanup Program; and Water Quality Program. These programs track data on pesticide spills, on the cleanup of pesticide contamination, and on the use of pesticides to protect water quality. This report also provides a brief description of the Surface Water Monitoring Program for Pesticides in Salmonid-Bearing Streams, April to December 2004.

Spill Prevention, Preparedness, and Response Program: Pesticide-Related Incidents

The Spill Program responds to pesticide-related complaints and is responsible for ensuring that damage from a spill is contained as much as possible and cleaned up as quickly as possible. Ecology uses the data from pesticide-related spills and complaints to identify where additional education is necessary to reduce the impacts of pesticides on human health and the environment. Summaries of the Spill Program pesticide-related complaints for 2004 are provided in Appendix C.

Table 17 lists the types of pesticide-related complaints received from 2000 to 2004. Complaints can involve more than one category of concern.

Table 17. Ecology Pesticide-Related Complaints, 2000 - 2004

Type of complaint*	2000	2001	2002	2003	2004
Pesticides threatening ground or surface water	20	11	23	13	10
Pesticide disposal or waste concern	14	14	12	12	6
Spills and fires	10	1	12	5	10
Unsafe pesticide storage or handling	13	6	11	10	3

** Complaints may involve more than one category.*

There were 29 pesticide-related complaints involving threats to air, water, and/or soil in 2004. Spill Program response to complaints may include follow-up by phone, referral back to involved parties for voluntary cleanup, referral to another agency, or issuance of a notice or requirement for cleanup. Complaints that are resolved during the initial contact and do not require technical assistance, investigation, or referral are classified as “No follow-up”. A request for information is an example of a “No follow-up” complaint. Investigations are initiated for complaints requiring field work, research, coordination with other agencies, or technical assistance.

Ecology responded within 24 hours in 27 (93%) of the 29 complaints in 2004. Ecology investigated 19 of the 29 complaints.

Of the 29 pesticide-related complaints received by Ecology during 2004:

- 8 occurred in the agricultural environment.
- 2 involved commercial or industrial activities.
- 8 were reported by private citizens.
- 2 stemmed from residential activities.
- 2 involved a combination of chemicals containing a pesticide.
- 3 resulted in potential exposure to humans.
- 6 required some form of cleanup or removal of materials.
- 4 were referred to the Toxics Cleanup Program.

After Ecology Spill staff respond and stabilize the initial emergency, the case is closed if it is determined that there are no long-term impacts. If there are long-term impacts, the case is referred to another program within the agency. When indicated, Ecology refers complaints to other state or local agencies. In 2004, the Spill Program referred 6 complaints involving pesticides to Tribes, Department of Transportation, city and county public works departments and WSDA. Ecology immediately notified DOH of 3 incidents where humans were potentially exposed to pesticides. The following is an example of a referred complaint:

> *In April 2004, the local fire chief collected a sample of pellets spilled on the ground near Lake Roesiger in Snohomish County. The pellets covered an area about 40-feet long and 8-feet wide. The fire chief gave the sample to Ecology for technical assistance. Ecology conducted hazardous categorization within 24 hours after the event. Pesticide and cyanide tests were inconclusive. A second round of hazardous characterization tests two days later were lightly positive for pesticides, but with a lower ph, most likely due to oxidation over time. As run off into the lake from the suspected weed and feed product was likely, Ecology recommended that lake water not be used for drinking until the lake purged itself. The local health department notified the public and decided when it was safe to use lake water again.*

Toxics Cleanup Program: Contaminated Sites Containing Pesticides

Ecology is responsible for oversight of contaminated areas requiring cleanup or monitoring. These sites may have been contaminated from leaking underground petroleum tanks, historic or current pesticide use, spills, or industrial processes. Ecology placed 10 pesticide-contaminated sites on the cleanup list in 2004 (Appendix E). Two sites per county were added in Chelan and Pierce Counties and one each in Grant, Okanogan, Snohomish, Thurston, Whatcom, and Yakima Counties.

Of the 10 pesticide-contaminated sites identified in 2004, Ecology designated 9 sites as active and undergoing cleanup and 1 as a non-active (remediated) site that was cleaned up or required no further action.

There were a cumulative total of 183 pesticide-contaminated sites in 2004. Of those, 94 sites remained active in the cleanup process at year's end (Appendix E). The status for all sites for 2004 is summarized in Table 18.

Table 18. Status of Pesticide-Contaminated Sites Statewide, 2004

Pesticide-contaminated sites	2004
Sites undergoing cleanup at year's end	94
Sites with no further action needed	58
Sites awaiting further investigation	31
Cumulative pesticide-contaminated sites for the year	183

Water Quality Program: Aquatic Pesticide Permit

Ecology is delegated by the EPA to implement all federal water pollution control laws and regulations through the state's laws. These include the issuance of permits for the use of aquatic pesticides to protect water quality. The permitting process ensures that chemicals are sparingly and properly applied, thereby reducing the potential for exposure to natural resources and people. Aquatic pesticide use during the 2004 application season is reported in the following sections. This is the second year aquatic pesticide permit data were tabulated and analyzed for this purpose.

Nuisance Plant and Algae Control NPDES Permit

The Nuisance Plant and Algae Control General NPDES Permit is issued to homeowners and lake advocacy groups for products used to control algae blooms and invasive milfoil or native nuisance weeds in lakes and ponds. Products permitted in the past included: Diquat, Endothall, 2,4-D (BEE), 2,4-D (DMA), Fluridone and glyphosate. Data on nuisance plant and algae control NPDES permits issued in 2004 were not available in time for publication in this report.

Oyster Grower's NPDES Permit

The Oyster Grower's NPDES Permit is an individual permit issued directly to the Willapa Bay/Grays Harbor Oyster Growers Association by Ecology's Southwest Regional Office. It allows the use of carbaryl, an insecticide in the carbamate family, to control burrowing shrimp in oyster beds. This permit was issued in 2002 and expires January 1, 2006. Data on the amounts used in 2004 were not available in time for publication of this report.

Noxious Weed NPDES Permit

The Noxious Weed General NPDES Permit is issued to government agencies, homeowners, lake advocacy groups, and marinas to treat lakes, rivers, and estuarine environments for noxious, non-native plant species. The treated areas are located throughout Washington State. The permits are issued by WSDA in partnership with the Ecology. The product totals are listed in Table 19.

Table 19. Noxious Weed NPDES Permit, 2004

Product	Gallons	Pounds
Glyphosate	8,452.4	
Diquat	475.33	
2,4-D	1,637.5	2,550
Fluridone	1.5	2,474
Endothall	43.5	
Imazapyr	3,858.5	
Triclopyr TEA	1,319.5	
Total product applied	***15,788***	***5,024***

Fish Management NPDES Permit

The Fish Management NPDES Permit is issued to the Department of Fish and Wildlife for fish management in Washington lakes. Currently, Fish and Wildlife is allowed to use only the product rotenone for fish management. The 14 lakes in Table 20 were reported as treated during the spring and fall of 2004. All are in eastern Washington.

Table 20. Fish Management NPDES Permit, 2004

Water Body	Gallons	Pounds
Pillar Lake	0	880
Snipe Lake	2	440
Cattail Lake	2	550
Gadwall Lake	0	385
Poacher Lake	3	0
Lemna Lake	0	110
Shoveler Lake	10	220
Sago Lake	2	220
Hourglass Lake	0	165
Widgeon Lake	17	715
Upper Hampton Lake	15	1,595
Lower Hampton Lake	20	880
Hen Lake	15	0
Dabbler Lake	5	0
Total product (Rotenone) applied	***91***	***6,160***

Irrigation District NPDES Permit

The Irrigation District NPDES Permit is issued for products to control weeds and algae in irrigation systems. The permit was issued to 16 of the 97 Washington irrigation districts during the 2004 application season. The 16 districts include 81% of the total irrigated land in Washington. The product totals are listed in Table 21.

Table 21. Irrigation District NPDES Permit, 2004

Product	Gallons	Pounds
Xylene	16,025	
Chelated copper*	855.7	
Copper sulfate*		169,288
Acrolein	38,106.7	
Total product applied	***54,987.4***	***169,288***

* *When chelated copper and copper sulfate are converted into elemental copper, the amount of copper applied equals 42,926 pounds.*

Mosquito General NPDES Permit

To prepare for the arrival of West Nile virus, the number of groups treating for mosquitoes in Washington State rapidly increased. Ecology allows mosquito control districts and government agencies to apply for coverage under a general permit through DOH. Some groups apply for coverage directly through Ecology's regional offices. All groups are required to submit the previous year's pesticide use data by February first of the following year. Table 22 summarizes pesticide totals statewide from the 2004 application season.

Table 22. Mosquito General NPDES Permit, 2004

Product type	Gallons	Pounds
Bacillus thuringiensis israelensis (Bti) granular/briquettes		11,011.81
Bacillus thuringiensis israelensis (Bti) liquid	9,043.98	
Bacillus spaericus (H-5a5b)		1,455.11
Methoprene briquettes		3,135.02
Methoprene liquid	488.36	
Methoprene granular		143.95
Methoprene pellets	488.36	
Monomolecular film	58.89	
Paraffinic white mineral oil	127	
Total product applied	***9,718.23***	***16,032.64***

Surface Water Monitoring

The Departments of Ecology and Agriculture are conducting a 3-year monitoring study to characterize pesticide concentrations in salmonid-bearing streams during the typical pesticide-use season. A report is now available on the second year (2004) results at http://www.ecy.wa.gov/biblio/0503025.html.

Two index watersheds, representing urban and agricultural land-use patterns, were sampled from April through October 2004. Thornton Creek in the Cedar-Sammamish watershed was selected as the urban drainage. Spring Creek, Sulphur Creek Wasteway, and Marion Drain in the Lower Yakima watershed represented agricultural land-use patterns.

Concentrations of all pesticides were generally low and close to analytical detection limits. In the agricultural basin, 2,4-dichlorophenylacetic acid (2,4-D) was the most commonly detected pesticide. Dichlobenil was most commonly detected in the urban watershed. Five pesticides, azinphos-methyl, chlorpyrifos, diazinon, malathion, and 4,4'-DDE, were above the numeric component of various standards. A single detection of malathion (3.05 µg/L) approached the acute LC_{50} for rainbow trout (4 µg/L) in the Marion Drain.